Prevention of Urinary Incontinence

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## Key Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>What it Means</th>
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<tbody>
<tr>
<td>UI</td>
<td>Urinary Incontinence</td>
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<tr>
<td>LUTS</td>
<td>Lower Urinary Tract Symptoms</td>
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<tr>
<td>BMP</td>
<td>Behavioral Modification Program</td>
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<tr>
<td>ICIQ-SF</td>
<td>International Consultation on Incontinence Questionnaire-Short Form</td>
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<tr>
<td>BT</td>
<td>Bladder Training</td>
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<tr>
<td>PMT</td>
<td>Pelvic (floor) Muscle Training</td>
</tr>
<tr>
<td>PLUS</td>
<td>Prevention of Lower Urinary Tract Symptoms</td>
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<tr>
<td>TULIP</td>
<td>Translating Unique Learning for Incontinence Prevention</td>
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</tbody>
</table>
Evolution from Treatment to Prevention

Components of Behavioral Interventions
- Pelvic Floor Muscle Training
- Timed Voiding
- Urgency Suppression
- Dietary Changes/Fluid Manipulation
- Weight Management
- Smoking Cessation
- Bowel Management

Note: Line reflects size of population
Evolution from Treatment to Prevention

- Note: Line reflects size of population
- Treated Patients
- Evaluated Patients
- Care Seeking Individuals
- Early Symptomatic Individuals
- Primary Prevention in Healthy Individuals
- Behavioral Intervention

FUTURE
Evolution from Treatment to Prevention

- Treated Patients
-Evaluated Patients
-Care Seeking Individuals
-Early Symptomatic Individuals
-Primary Prevention in Healthy Individuals

Behavioral Intervention

Note: Line reflects size of population
Evolution from Treatment to Prevention

Note: Line reflects size of population

- Treated Patients
- Evaluated Patients
- Care Seeking Individuals
- Early Symptomatic Individuals
- Primary Prevention in Healthy Individuals

Behavioral Intervention
Stepping Stones on the Path to Prevention

CONSENSUS
A healthy bladder: a consensus statement
E. S. Lukacz,¹ C. Sampselle,² M. Gray,³ S. MacDoulmid,⁴ M. Rosenberg,⁵ P. Eliaivorth,⁶ M. H. Palmer⁷

National Institutes of Health State-of-the-Science Conference
Statement: Prevention of Fecal and Urinary Incontinence in Adults
C. Scott Landefeld, MD; Barbara J. Bowers, PhD, RN; Andrew D. Hold, MD, JD; Katherine E. Hammann, MD, PhD; Eileen Hoffman, MD; Meleah J. Ingles, PhD; Joseph T. King Jr., MD, MCE; W. Scott McDougall, MD; Heidi Nelson, MD; Enid John Oray, PhD; Michael Pignone, MD; MPH; Lisa Richardson; Robert M. Rohrbough, MD; Hilary C. Siebens, MD; and Bruce J. Trock, PhD

PREVENTION OF URINARY INCONTINENCE BY BEHAVIORAL MODIFICATION PROGRAM: A RANDOMIZED, CONTROLLED TRIAL AMONG OLDER WOMEN IN THE COMMUNITY
ANANIAS C. BLOXNO, LARRY M. BLOXNO, R. REGULA HERZOG, T. E. Raghunathan, SANDRA HINIS, KASSANDRA L. MESSER, CINDY KARL, AND MARA CLAUDIA A. LEITR

Twenty Years Since The Simon Foundation’s “First International Conference for Prevention of Incontinence?” How Has The Field Progressed Since?
Cheryl B. Gartley, The Simon Foundation for Continence; Alan Gottenden, PhD, University College London; Christine Norton, PhD, MA, RN, King’s College London; Ronald H. Rosenbluy, PhD, AEPP, University of Florida
Evidence for Prevention - Men
Pre-operative Rehabilitation to Prevent Post-Prostatectomy UI

- 125 men undergoing radical prostatectomy,
- University of Alabama at Birmingham, Veterans Affairs Medical Center and 7 private urology practices, U.S.A.
- Randomized to:
  - Single session of pre-operative, biofeedback-assisted pelvic floor muscle exercise training and instructions for home exercises
  - Usual care
- Outcome: No accidents on 3 weekly 1-day bladder diaries in a row or on one 7-day bladder diary

Burgio, Goode, Urban D et al. *J Urol.* 2006;175,196

With permission K Burgio
Kaplan-Meyer Curves Showing Time to Continence

P = .032
• Continence Rates
  • 3 months: 48% vs. 32%
  • 6 months: 68% vs. 48%
Number needed to treat to get one additional man out of pads by 6 months was five men

Cost of the single preoperative biofeedback-assisted pelvic floor muscle training was approximately $150

Burgio, Goode, Urban D et al. *J Urol*. 2006;175,196
Conclusion – Pre-operative Training to Prevent Postoperative Incontinence

- Perioperative behavioral training can hasten recovery of bladder control and reduce the severity of incontinence following radical prostatectomy.

- Urologists should consider referring their radical prostatectomy patients to a continence center for pre- and/or post-operative training or developing the expertise in their own practices.

- Unfortunately, most men undergoing radical prostatectomy do not get perioperative training.

Burgio, Goode, Urban D et al. *J Urol.* 2006;175,196

*With permission K Burgio*
Evidence for Prevention - Women
PREVENTION OF UI BY GROUP BEHAVIORAL MODIFICATION PROGRAM: A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL AMONG OLDER WOMEN IN THE COMMUNITY

A.C. Diokno, MD, C.M. Sampselle, Ph.D., RNC, A.R. Herzog, MA, Ph.D., T.E. Raghunathan, MS, Ph.D., Sandra Hines, BSN, MS, K. Messer, BA, C. Karl, RN, M.C. Leite, MA

Funded by NIH-NIA Grant AG085111

J Urol. 2004 Mar;171(3):1165-71
Prevention of UI: Protocol

CONTROL GROUP (n=195)

- Clinic appointment for baseline measures including pelvic floor muscle (PFM) assessment
- Quarterly phone and mail contact for f/u measures and 3-day voiding diary
- 12 month exit evaluation including PFM assessment

GROUP CLASS (n=164)

- Baseline measures, behavioral modification program (BMP)
- 2 weeks post-BMP assessment & re-enforcement if needed
- Quarterly follow-up
- 12 month exit evaluation including PFM assessment

Mean Age ~65 years

Lost to follow-up: 18 control and 23 Group Class participants
Prevention of UI: Results

• Retained Behavior Modification Program Knowledge (2 and 4 weeks post class)
  – Pelvic Muscle Training (PMT) knowledge - 87%
  – Bladder Training knowledge - 89%
  – Correct PMT technique - 68% (89% were successful with instruction)

• Compared to Control group, Group Class had
  – More subjects with absolute continence at 12 months
  – Significantly more with same or better incontinence at 12 months
  – More subjects with improved pelvic floor muscle strength
  – Significantly less daytime and nocturnal voids
Prevention Of UI: Conclusions

• First prospective RCT of prevention of UI among older women living in community

• Group Behavior Modification teaching followed by brief follow-up instruction is effective in maintaining continence, improved pelvic muscle strength and voiding control

• Behavior Modification Program effects are durable for at least 12 months

Bladder Health Class (BH Class)
- Two-hour face-to-face taught by professional
  - Content, practice, & take-home instructions (Pelvic floor muscle exercise, Bladder training, Urgency suppression, the Squeeze trick)

DVD (BH Class content abbr. to 20 minutes)
- Viewed on site and taken home

Sample of 647 enrolled
- Age mean 63 years (range 55-87 years)
- Nearly 28% African American
- BMI 29 (SD 6.35)

Randomization effective: No differences in demographics, clinical measures between groups at baseline

FUNDING: National Institute of Nursing Research, National Institute of Health, R01NR012011
RESULTS:
International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)


With permission D Newman
The two-hour face-to-face BH Class and the DVD are useful for lower urinary tract symptoms (LUTS) prevention.

Method could be employed to build a simple awareness strategy (e.g., invitational mailing), providing bladder control techniques (via DVD or group classes) could benefit MANY motivated women:

- Appropriate for primary prevention (49%)
- May also be beneficial for the other 51% who are highly motivated (secondary prevention)

The Continence Across Continents Trial

Cluster randomised trial of three different community-based continence promotion interventions to improve urinary incontinence among untreated older women

2010 - 2013: Canadian Institutes of Health Research
INTERNATIONAL COLLABORATION
Institute on Aging

2008 - 2012: UK Economic and Social Research Council
INTERNATIONAL COLLABORATION
New Dynamics on Ageing Programme

Organisations Contacted
n = 420

Organisations/Clusters randomised n = 71
Attendees n = 763

Combined Intervention

Continence Workshop

Self-management

Women’s health lecture

Did not meet eligibility criteria n = 341
Eligible but no consent n = 63
Unknown n = 100

Enrolled in the Trial n = 259

Combined n = 61
55 completed 3 mo f/u

Combined n = 64
59 completed 3 mo f/u

Self-management n = 70
62 completed 3 mo f/u

Control n = 64
52 completed 3 mo f/u

### Study Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Women who participated in the study (n=259)</th>
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<tbody>
<tr>
<td>Age (mean ± SD)</td>
<td>72 ± 7.5 years old</td>
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<tr>
<td>Range</td>
<td>60 - 95</td>
</tr>
<tr>
<td>Living alone</td>
<td>46 %</td>
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<tr>
<td>Self-rated health</td>
<td></td>
</tr>
<tr>
<td>Fair/poor</td>
<td>25 %</td>
</tr>
<tr>
<td>Diabetes</td>
<td>26 %</td>
</tr>
<tr>
<td>Heart disease</td>
<td>25 %</td>
</tr>
<tr>
<td>Arthritis</td>
<td>58 %</td>
</tr>
<tr>
<td>Falls in past year</td>
<td>29 %</td>
</tr>
<tr>
<td>High school level education or less</td>
<td>66 %</td>
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<tr>
<td>Duration of incontinence</td>
<td></td>
</tr>
<tr>
<td>2-5 years</td>
<td>35 %</td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>28 %</td>
</tr>
<tr>
<td>Severity of incontinence</td>
<td>59 %</td>
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With permission C Tannenbaum
3-month telephone follow-up: Compared to before the workshop, how would you rate your incontinence symptoms?

- Very much better
- Much better
- A little better
- No change
- A little worse
- Much worse
- Very much worse

<table>
<thead>
<tr>
<th>Intervention</th>
<th>% Any Improvement</th>
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<tbody>
<tr>
<td>Combined</td>
<td>65.6</td>
</tr>
<tr>
<td>Continence Workshop</td>
<td>59.4</td>
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<tr>
<td>Self-management</td>
<td>41.4</td>
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<tr>
<td>Women's Health Lecture</td>
<td>10.9</td>
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Crucial Goal: “Priority Conditions” Must Include LUTS in Research - Bladder Conditions are NOT Quality of Life Issues

OAB / Urinary Incontinence

- Decreased Mobility Secondary to Pain
- Decreased Cognition
- Decreased Estrogen
- Bowel Dysfunction
- Increased Smoking
- Increased Obesity
- Decreased Vision
- Increased Cardiovascular Disease
- Decreased Physical Activity
- Increased Depression

References:
2. de Boer TA et al. Int Urogynecol J, 2010 Nov 23; Epub.
Prevention of Lower Urinary Tract Symptoms (PLUS) Research Consortium
Considers Bladder Health Holistically

Considering Ages from adolescent girls to older women

LUTS=Lower Urinary Tract Symptoms
UI=Urinary Incontinence
ISD=Intrinsic Urethral Dysfunction
UTI=Urinary Tract Infection
VD=Voiding Dysfunction
IC/BPS=Interstitial Cystitis/Bladder Pain Syndrome
The PLUS Research Consortium will utilize

Multiple approaches to study …

Preventing LUTS

Promoting Bladder Health

…Two Sides of the Same Coin
PLUS Consortium Investigators (weighted)

Clinical Psychologist/Behavioral Medicine
   Community Health Scientist

Health Comm Researchers
   Women's Health Advocate

Epidemiologists

Biostatisticians Researchers
   Health Psychologist
   Ped Urol Nurse Practitioner

Urogynecologists
   Developmental Pediatrician
   Reproductive Health

Health Comm
   Behavioral Interventionist
   Physicians

Behavioral Neuroendocrinologist

Prevention Scientists

Geriatricians
   Medical Sociologist
   Infectious Disease
   Nurse Midwife

Female Urologists
   Geriatric Nurse Practitioner
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